WRITTEN TESTIMONY
OF GREGORY B. JACZKO, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON CLEAN AIR AND NUCLEAR SAFETY

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Good morning Mr. Chairman, Senator Vitter, and distinguished members of the Subcommittee. The Commission, including my colleagues Commissioner Svinicki, Commissioner Apostolakis, Commissioner Magwood, and Commissioner Ostendorff, is pleased to appear before you today to discuss the Nuclear Regulatory Commission's (NRC) oversight of operating reactors and licensing of new reactors.

I first want to thank you Mr. Chairman, Senator Vitter, and the Subcommittee for your support and leadership in the recent confirmations of Commissioner Apostolakis, Commissioner Magwood, and Commissioner Ostendorff. With the benefit of their expertise and insights, along with Commissioner Svinicki's experience, the Commission stands fully prepared to continue to vigorously advance the NRC's mission of protecting the public health and safety, promoting the common defense and security, and protecting the environment.

That critical mission entails broad responsibilities for the agency. The NRC currently licenses, inspects, and assesses the performance of 104 operating nuclear power plants, as well as many fuel cycle facilities and research and test reactors. Furthermore, nuclear materials are in use at thousands of hospitals, universities, and other locations around the country. Each of these facilities and materials users presents different challenges for the NRC and requires that the NRC develop and sustain a diverse array of regulatory capabilities. The Commission cannot give enough credit for the NRC's effectiveness as a regulator to the NRC's hard-working,

talented, and dedicated staff. The Commission is continually impressed by their expertise, experience, and commitment to public service.

The NRC is now nearly 4,000 employees strong. As the agency has grown, the NRC team has remained united by a common set of organizational values and principles of good regulation. Those values and principles continue to guide the agency in advancing its important safety, security, and environmental mission. Those values guide the NRC in maintaining its independence in accomplishing its mission, engaging the public, licensees, and other stakeholders openly and transparently, and pursuing excellence in all aspects of the NRC's work. The Commission believes the NRC's historic values and principles are vital to the NRC's ability to serve as a strong and effective safety regulator. These values and principles have been especially important during the last few years – a time of dramatic change for the agency – in helping sustain our focus and effectiveness.

During the past five years alone, the number of NRC employees has grown by more than 25 percent, the size of the NRC budget has increased by more than 50 percent, and two new offices have been created within the agency. To accommodate this growth and reconsolidate the headquarters staff, construction will soon begin on the NRC's new 14-story office building adjacent to the agency's Rockville headquarters. This dramatic growth in staff and resources was necessary to maintain the NRC's ability to address significant changes in the agency's regulatory landscape, including the review of a large number of new reactor applications.

None of this would have been possible without the support of this Subcommittee. I want to thank you Mr. Chairman, Senator Vitter, Senator Voinovich, and the other Members of the Subcommittee for providing that support. Your efforts have enabled the NRC to maintain its critical focus on the safety of operating reactors, while effectively meeting the additional

regulatory workload associated with the sustained high interest in safe license renewals for operating reactors and additional interest in certifying designs and licensing new reactors.

First and foremost, the focus of the NRC has remained, and will continue to remain, on the safety and security of operating reactors and nuclear materials. The NRC performs continuous oversight activities through its Reactor Oversight Process (ROP) to verify that the 104 currently licensed reactors are operating safely and securely in accordance with the NRC's regulations. This risk-informed and performance-based oversight approach relies on inspection findings and performance indicators to assess the performance of the plants. Although the ROP is a highly effective oversight tool, the NRC is always focused on improving its effectiveness. Last year, the NRC completed a biennial review of the ROP baseline inspection program to ensure that the ROP continues to focus and align resources on the most appropriate areas of reactor safety. Additionally, the NRC held a public meeting earlier this month to begin a discussion with the public and stakeholders on the potential for changes to the performance indicators in the ROP. This past week, the Commission also held a meeting to discuss the development of a more risk-informed, performance-based approach to the agency's oversight of fuel cycle facilities.

In the materials area, the NRC and the Agreement States oversee a wide variety of licensees that use radioactive materials for industrial applications, basic and applied research, manufacturing, and medical purposes. The NRC works hard to ensure that its licensees are using these materials in a manner that protects public health and safety and the environment. That work includes guidance and rules for licensees, as well as effective oversight and enforcement programs to ensure compliance. As the Subcommittee may be aware, in March 2010, the NRC proposed a $227,500 fine against the U.S. Department of Veterans Affairs for violations of NRC regulations associated with an unprecedented number of medical errors involving treatment of prostate cancer patients at the Philadelphia Veterans Affairs Medical

Center. This is one of the largest fines the NRC has ever assessed against a medical licensee, and the licensee did not contest the fine. The NRC remains committed to ensuring that all patients, including veterans, are not exposed to radiation in violation of NRC regulations. To that end, the NRC is evaluating the program to see what improvements may be needed.

These types of oversight activities are critical to the NRC's effectiveness as a regulator. To maintain strong oversight programs, the NRC is focused on making progress on long-standing issues, as well as addressing emerging issues in a pro-active and effective way. Given the growth of the NRC's regulatory workload in recent years, these efforts are especially important for ensuring that the NRC remains an effective regulator.

Fire protection and emergency core cooling system sump performance are two significant long-standing issues on which the NRC is currently focused. The Commission's policy on fire protection is clear: the "staff should continue to encourage licensees to voluntarily transition to National Fire Protection Association Standard (NFPA) 805." As a risk-informed, performance-based approach, NFPA 805 allows licensees to undertake a comprehensive evaluation of their fire safety measures and focus their attention on design and operational issues according to their safety significance. Fifty plants have voluntarily opted to shift to NFPA 805. Two plants, Oconee and Shearon Harris, volunteered to be pilot plants for the transition to NFPA 805. The Shearon Harris pilot is nearing completion, and the Oconee pilot also expects to finish later this year. The path towards improving fire protection has been challenging at times, but the NRC and its licensees are making progress.

A second important issue on which the Commission intends to achieve closure in the near future is Generic Safety Issue-191 (GSI-191), which seeks to address the possibility that debris generated during a loss-of-coolant accident would clog the emergency core cooling system sump screens in pressurized water reactors. Like fire protection, GSI-191 has

presented challenges, but the agency has taken significant steps to address this issue among operating reactors and in new reactor designs. At the present time, 38 out of 69 pressurized water reactors have resolved their sump performance issues, with the exception of in-vessel effects. The Commission recently held a meeting to discuss the status of efforts to resolve this issue and will continue to remain engaged with the staff and licensees on this matter.

Even as the agency works on these long-standing issues, the NRC also will remain committed to addressing emerging issues in a pro-active and effective manner. Two such issues are age-related degradation and cyber security.

The NRC strives to maintain a sound understanding of the effect of age-related degradation on power reactor structures, systems, and components to ensure that they continue to meet their required safety performance. This research has taken on added significance in recent years as the NRC has received, and expects to continue to receive, license renewal requests that extend a reactor's authorized operation beyond its original 40-year term.

In recent months, age-related degradation has attracted widespread public attention in the context of buried piping and tritium leaks. The leaks have not exceeded the limits the NRC sets to ensure public health and safety, nor have the leaks interfered with the proper functioning of the plants' safety systems. But the public continues to ask– what is leaking, where is it leaking, how much is leaking, and what is being done to stop the leaking and to prevent it from happening again in the future? This is a public confidence issue that requires that both the NRC and licensees continually listen to people's concerns, and effectively communicate what the risks are and what is being done in response to the leaks. The Commission considers it a priority to fully inform the public and promote understanding of these issues. Toward that end, the NRC held public forums last month in Vermont and in the Washington, DC area to discuss

this matter. Be assured that the NRC will continue to engage the public to provide assurances that the NRC is working to protect public health and safety.

To further address these issues, the agency recently established a Groundwater Contamination Task Force to reevaluate the agency's actions in response to recent tritium incidents, as well as the staff's response to recommendations made in the 2006 Liquid Radioactive Release Lessons Learned Task Force Final Report. Also, the staff is actively participating in American Society of Mechanical Engineers Code and NACE International (formerly the National Association of Corrosion Engineers) standards activities to determine whether corrosion protection standards need to be enhanced.

As the agency stays on top of the potential safety issues related to aging facilities, the NRC has not lost sight of its critical security mission. A major power reactor security rule went into effect in March of this year that addresses issues such as physical barriers and detection and assessment systems. Although some licensees requested and were granted extensions to the compliance date for limited aspects of the new rule, the implementation of this rule furthers the agency's efforts to update security requirements. The NRC is keenly aware of the dynamic threat environment. The cyber threat, in particular, evolves quickly and requires that the agency maintain a consistent focus to evaluate the risks that it poses and how the NRC and its licensees can best guard against it. The NRC has worked collaboratively with the Federal Energy Regulatory Commission (FERC) to coordinate our roles and responsibilities in implementing our respective cyber security requirements. FERC and the North American Electric Reliability Corporation (NERC) have made progress on a Memorandum of Understanding to coordinate inspections on the cyber issue. This situation could be improved with statutory change to clarify that NERC can reimburse NRC for cyber security inspections.

Additionally, this past year, the Commission finalized a new cyber security rule, which requires that licensed nuclear power plants, as well as applicants for operating licenses, develop and submit for NRC review individual cyber security plans. To assist with the implementation of this rule, the staff has completed work on an associated regulatory guide, and continues to make progress in reviewing licensee plans. In addition to the Commission's other efforts to continue to update its security-related requirements, this cyber security rule is an indication of the significant progress the NRC has made in strengthening the agency's security regulatory framework.

The rulemaking and oversight work discussed to this point are very important to meeting the agency's safety and security objectives. The NRC continually works to strengthen its rules, update its guidance, and enhance its inspection and enforcement programs to meet the agency's safety mission. But the NRC cannot be everywhere, and it cannot inspect everything. It is the responsibility of the licensees who have day-to-day control over the functioning of the plant and have the responsibility to develop and maintain a positive safety culture that ensures that safety and security issues receive the attention they warrant.

Safety culture is an area that the NRC has increasingly focused on, in recent years, for the simple reason that the NRC has found that a deteriorating safety culture is associated with safety problems. The NRC has incorporated safety culture into the ROP and also has been working to develop a safety culture policy statement. The current draft statement makes clear that security is an important part of a positive safety culture and that safety culture is no less significant for material sites than for reactor facilities. The Commission recently held a meeting to discuss the draft statement after the public comment period closed. Throughout this process, the NRC has benefited from extensive public input by soliciting written comments and convening several public meetings on the issue. Over the next year, the Commission looks forward to working to finalize a statement that clarifies the NRC's expectations of its licensees and that helps the agency staff determine how best to promote safety culture.

Before moving on, I should emphasize that maintaining a strong safety culture within the agency is a priority for the NRC. The agency can take pride in the fact that the 2009 NRC Inspector General's Safety Culture Survey of NRC employees reported that the agency's safety culture and work climate scores are excellent and compare favorably with those of high-performing private-sector companies. Building upon this past success, the NRC has been working on implementing the follow-up actions to the Inspector General's findings, as well as the recommendations of the agency's Internal Safety Culture Task Force.

As these initiatives demonstrate, the Commission has maintained its focus on verifying that operating plants operate in line with the NRC's safety, security, and environmental requirements. The NRC's core mission objectives are no different in the context of new reactors. The agency is committed to ensuring that any new reactors that may be licensed, constructed, and operated would be done so in accordance with the NRC's safety, security, and environmental regulations.

By 2012, the NRC may be approaching a final decision on the first combined license (COL) applications for new reactors under the Part 52 licensing process. But that is far from the only new reactor licensing activity that the agency will be embarking upon. By 2012, the NRC also may be approaching a final decision on the operating license for the Watts Bar 2 reactor application under the original Part 50 licensing process. If its application is found to meet NRC requirements, Watts Bar 2 – a reactor that the Tennessee Valley Authority (TVA) started to construct in 1973, suspended construction on in 1985, and resumed construction on in 2007 – could be the first new reactor to start commercial operation since 1996. By 2012, in addition to these licensing activities, the NRC also expects to receive the first design certification request for a small modular reactor (SMR) utilizing technology similar to the current operating reactors. Subsequent SMR designs could employ reactor technologies other than the light-water technology that predominates among currently operating reactors.

Just ten years ago, few people inside or outside the NRC could have foreseen the breadth of major licensing activities now before the agency. The Commission is fully confident that the agency can successfully and effectively meet its regulatory responsibilities with regard to all of these matters. That confidence reflects the Commission's high regard for the hard work and dedication of the NRC staff and their strong track record in conducting efficient, predictable, and thorough licensing reviews.

One need look no further than NRC's existing licensing processes to see that the agency knows how to do this type of work. The NRC completes approximately 1500 reactor licensing actions and tasks per year. In addition to conducting reviews effectively and efficiently, the NRC has historically demonstrated its ability to adjust to changing circumstances, as shown when the agency developed new capabilities to review power reactor license renewal and power uprate applications.

At the present time, the NRC is actively reviewing 13 combined license (COL) applications for 22 new reactors under the Part 52 licensing process. The Commission originally envisioned that vendors would apply for certification of standardized designs, and that applicants would then proceed sequentially through the review process for a COL. Due to a number of factors, the anticipated sequential Part 52 process has not worked that way, but the NRC has done an effective job in concurrently reviewing design certification requests and reactor COL applications.

The agency's strong work in this area was recently recognized by the Bipartisan Policy Center (BPC). Under the leadership of former Senator Pete Domenici and former NRC Chairman Richard Meserve, the BPC assessment confirmed the high-quality work of the NRC staff in conducting thorough and timely reviews of license applications. In keeping with the agency's strong commitment to continuous improvement, the NRC will implement the BPC's

recommendation to conduct a lessons-learned review of the Part 52 licensing process. The NRC staff will proceed with this review after the first COL review has been completed, which may include recommended policy proposals for Commission consideration to further enhance the licensing process for future applications.

As the agency approaches final decisions on the first COL applications, the Commission will seek to complete its update of the waste confidence rule. The NRC staff has taken a fresh look at the technical basis for the agency's waste confidence findings and has reaffirmed that spent nuclear fuel in any reactor can be safely stored, without a significant impact to the environment, for at least 60 years after the licensed life of operation. The Commission has this draft final rule in front of it now. This will be an important issue for the Commission to resolve soon.

As the staff completes the final safety reviews on the first COL applications, the Commission also will focus attention on preparing for the mandatory hearings required under the Atomic Energy Act. Back in 2007, the Commission committed to conducting the mandatory hearings, rather than to continue to have the Atomic Safety and Licensing Board Panels perform this function. Over the coming year, the Commission will prepare for the conduct of these hearings. The Commission is committed to making required safety, security, and environmental findings openly, fairly, and efficiently.

In addition to the agency's work related to the new reactor COL applications under review, the NRC is also actively preparing for the licensing and other regulatory work related to the advanced generation of reactors. In 2012 and 2013, the NRC expects to receive multiple applications for design certifications, early site permits, combined licenses, and manufacturing licenses for small modular reactors (SMRs). Additionally, the Next Generation Nuclear Plant (NGNP) program is expected to provide a design certification application to the NRC in 2012 or

2013. The NRC has been working closely with the Department of Energy to ensure that the agency will be ready to review this application.

In anticipation of these activities, the NRC established the Advanced Reactor Program within the Office of New Reactors to focus on preparing and conducting licensing reviews of SMRs. Since the NRC's existing regulations and guidance are focused on light-water reactors and may not necessarily translate to other technologies that might be employed by SMRs, the NRC is identifying and conducting necessary research, developing the needed analytical tools, and preparing appropriate review guidance for SMR-related licensing activities. The staff has also prepared a comprehensive paper on potential policy, licensing, and technical issues that may require Commission consideration in the future.

In addition to the increased interest in new reactors, the NRC also has seen greater interest in the construction of uranium recovery and enrichment facilities. The agency has a strong regulatory framework in place for ensuring that uranium recovery and enrichment facilities are constructed, operated, and decommissioned in a safe, secure, and environmentally sensitive manner. In anticipation of new applications, the agency has been working to strengthen the agency's review process. For example, in the area of in situ recovery (ISR) facilities – the type of uranium recovery that has probably generated the most interest over the last few years – the agency has sought to make its environmental review more efficient and effective. Specifically, the agency has prepared a Generic Environmental Impact Statement (GEIS) to serve as a starting point for the site-specific environmental reviews for these applications. By addressing common environmental issues associated with these facilities, the GEIS helps avoid duplication in analyses and allows the staff to stay focused on conducting thorough site-specific reviews. To ensure that the site-specific review addresses all of the applicable environmental issues, the NRC is conducting a Supplemental Environmental Impact Statement for each proposed site.

The significant issues that I have discussed today make it all the more important that NRC continue to advance its mission in an open and transparent way and the Commission is committed to doing so. For example, over the past few months, the NRC has moved forward with implementing the President's Open Government Directive. As an independent agency, the NRC was not required to comply with this Directive, but the agency has done so because it is consistent with the NRC's historic organizational commitment to openness and transparency. Furthermore, the NRC staff has done consistently good work in reaching out to the public and to stakeholders in developing new regulatory implementation guidance and other related work. Greater openness and transparency will only build public confidence in the agency by highlighting the agency's strengths: the experience, expertise, and dedication of the NRC staff, as well as the vitality of the Commission.

Mr. Chairman, Senator Vitter, and members of the Subcommittee, on behalf of my fellow Commissioners, thank you again for the opportunity to appear before the Subcommittee. We look forward to continuing to work with you to advance the NRC's important public safety mission. We would be pleased to respond to any questions that the Subcommittee may have. Thank you.